Nostratic: Examining a Linguistic Macrofamily

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Chapter 2

Review of Dolgopolsky's *The Nostratic Macrofamily and Linguistic Palaeontology*

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Aharon Dolgopolsky's *The Nostratic Macrofamily and Linguistic Palaeontology* (hereafter *NM*) begins with an introduction by the well-known British archaeologist Colin Renfrew. Renfrew does an excellent job in tracing the history of the Nostratic Hypothesis, though the names of several contemporary scholars who have made important contributions to Nostratic studies are conspicuous by their absence (Václav Blažek and Allan Bomhard, for example). Renfrew then presents a very balanced summary of the problems and pitfalls involved in attempting to demonstrate distant linguistic relationship, and he quite rightly points out that this kind of work.is still looked upon with disapproval, if not outright hostility, by most mainstream linguists. However, the very fact that Dolgopolsky's work has been published and that a symposium has been devoted to discussing this work and its implications indicates that the Nostratic Hypothesis has gained both recognition and a modicum of respectability, if not general acceptance.

In *NM*, Dolgopolsky is mainly concerned with linguistic palaeontology, and the focus of his attention, therefore, is on putative etyma pertaining to habitat, social organization, and material culture. Dolgopolsky's conclusions are supported by a sample of 124 proposed cognate sets. The book ends with a reconstruction of the Proto-Nostratic phonological system and the reflexes of the consonants (but not the vowels) in the major branches of Nostratic.

So, what then is Dolgopolsky trying to establish? The fact is, he never explicitly says, at least not in one place — we have to infer what his thesis is from the introduction to the book written by Renfrew and from the introductory sections that Dolgopolsky provides to each of the topic areas he is discussing. It would have been helpful if Dolgopolsky had laid out his conclusions in detail in an introduction or in a summation at the end of the book. What I have in mind here is something similar to what Calvert Watkins prepared for the introduction to the *American Heritage Dictionary of Indo-European Roots* (1985). Basically, what he is saying is that there is a group of languages, stretching across Northern and Central Eurasia, the Near East and North Africa, and the Indian subcontinent, and belonging to several well-established language families, which, upon closer investigation, appear to belong a larger grouping, and

which, following the name proposed in 1903 by Holger Pedersen (cf. Pedersen 1931, 335–9 for details), has come to be known as the Nostratic macrofamily. Furthermore, by applying the techniques of linguistic palaeontology, it is possible to come up with a possible date when the parent language (so-called 'Proto-Nostratic') of this macrofamily was spoken, namely, somewhere between 15,000 to 12,000 BCE, to locate its place of origin or 'homeland', namely, in Southwest Asia, that is to say, in the Near East in the vicinity of the Fertile Crescent, and to get a rough idea about the social organization and material culture (late Upper Palaeolithic ~ early Mesolithic) of the speakers of the parent language. The conclusions reached by Dolgopolsky, it may be noted, concur fairly closely with those I reached in Chapter 6 of my 1996 book entitled *Indo-European and the Nostratic Hypothesis*.

Two considerations need to be kept in mind when evaluating the cognate sets proposed by Dolgopolsky. The first of these is the question of semantic plausibility. Has Dolgopolsky established recurrent sound-meaning correspondences for a reasonably large sample of lexical material, using the oldest forms available from as many languages as possible? Has he selected lexical forms for comparison from the daughter languages that have identical or similar meanings? If, on the other hand, the material he is comparing contains forms that are divergent in meaning, can they convincingly be derived, through widely-attested semantic shifts, from earlier forms with identical or similar meaning? Finally, has he proposed semantic structures for Proto-Nostratic that reflect the habitat, social organization, and material culture of the late Upper Palaeolithic and early Mesolithic periods as known from other disciplines such as archaeology? The second consideration concerns sound correspondences. Has Dolgopolsky established regular sound correspondences (that is, those that occur consistently and systematically)? When exceptions to the regular sound correspondences occur, has he explained them? Has he reconstructed proto-forms that reflect what is actually attested in the daughter languages, or are his reconstructions *ad hoc* or based upon theoretical considerations that do not necessarily reflect what is actually attested? Finally, has he formulated the sound laws leading to the forms in the descendant languages, identifying the laws that have produced the regular sound correspondences as well as the exceptions?

Let us look at the sound correspondences first. Dolgopolsky's reconstruction of the Proto-Nostratic phonological system appears at the end of the book on page 101, though only the consonants are given. This is followed by a table of sound correspondences, beginning on page 102. Though Dolgopolsky uses slightly different symbols than I use, the phonological system he posits for Proto-Nostratic is quite close to what I posit, namely:

Stops and affricates:

p^h	t^h	c^h	$č^h$	t^{yh}	$tɬ^h$	k^h	k^{wh}	q^h		
b	d	ʒ	ǯ	d^y		g	g^w	ɢ		
p'	t'	c'	č'	t'^y	$tɬ'$	k'	k'^w	q'	q'^w	ʔ

Fricatives:

s	š	s^y		h	ħ
z	ž (?)	z^y (?)			ʕ

Glides:

w	y

Nasals and Liquids:

m	n	n^y	ŋ
	l	l^y	
	r	r^y	

Vowels:

i ~ e		u ~ o
	ə ~ a	

Also the sequences:

iy ~ ey	uy ~ oy	əy ~ ay
iw ~ ew	uw ~ ow	əw ~ aw

Unlike Dolgopolsky, I reconstruct a series of labialized velars (= 'labiovelars'). In place of Dolgopolsky's *ʒ, *ć, *ć', I set up a series of palatalized alveolars *d^y, *t^y, *t'^y, respectively. There are several other disagreements between my reconstruction and Dolgopolsky's, but all of these differences are relatively minor.

The major disagreement I have with Dolgopolsky (and, it goes without saying, with Illič-Svityč as well) concerns the sound correspondences. Let me repeat here the objections I have raised repeatedly in the past.

In 1972 and 1973, the Georgian scholar Thomas V. Gamkrelidze and the Russian scholar Vjačeslav V. Ivanov jointly proposed a radical reinterpretation of the Proto-Indo-European stop system. According to their reinterpretation, the Proto-Indo-European stop system was characterized by the three-way contrast glottalized ~ voiceless (aspirated) ~ voiced (aspirated). In this revised interpretation, aspiration is viewed as a redundant feature, and the phonemes in question could also be realized as allophonic variants without aspiration. Paul

J. Hopper made a similar proposal at about the same time. I should point out here that, even though I support the revisions proposed by Gamkrelidze, Hopper, and Ivanov, my views are not dependent upon any particular reconstruction of the Indo-European stop system — the sound correspondences I have proposed can be maintained using the traditional reconstruction as well. What the new views of Indo-European consonantism did was bring into light the implausibility of certain Nostratic sound correspondences established by Dolgopolsky and Illič-Svityč (see below for details).

This new interpretation opens new possibilities for comparing Proto-Indo-European with the other Nostratic daughter languages, especially Proto-Kartvelian and Proto-Afrasian, each of which had a similar three-way contrast. The most straightforward assumption would be that the glottalized stops posited by Gamkrelidze and Ivanov for Proto-Indo-European would correspond to glottalized stops in Proto-Kartvelian and Proto-Afrasian, while the voiceless stops would correspond to voiceless stops and voiced stops to voiced stops. This, however, is quite different from the correspondences proposed by Dolgopolsky and Illič-Svityč. They see the glottalized stops of Proto-Kartvelian and Proto-Afrasian as corresponding to the traditional plain voiceless stops of Proto-Indo-European, while the voiceless stops in the former two branches are seen as corresponding to the traditional plain voiced stops of Proto-Indo-European, and, finally, the voiced stops to the traditional voiced aspirates of Proto-Indo-European. Dolgopolsky and Illič-Svityč then reconstruct the Proto-Nostratic phonological system on the model of Kartvelian and Afrasian, with the three-way contrast glottalized ~ voiceless ~ voiced in the series of stops and affricates.

The mistake that Dolgopolsky and Illič-Svityč have made is in trying to equate the glottalized stops of Proto-Kartvelian and Proto-Afrasian with the traditional plain voiceless stops of Proto-Indo-European. This reconstruction would make the glottalized stops the least marked members of the Proto-Nostratic stop system. Dolgopolsky's and Illič-Svityč's reconstruction is thus in contradiction to typological evidence, according to which glottalized stops are uniformly the most highly marked members of a hierarchy. The reason that Dolgopolsky's and Illič-Svityč's reconstruction would make the glottalized stops the least marked members is as follows: Dolgopolsky and Illič-Svityč posit glottalics for Proto-Nostratic on the basis of one or two seemingly solid examples in which glottalics in Proto-Afrasian and/or Proto-Kartvelian appear to correspond to traditional plain voiceless stops in Proto-Indo-European. On the basis of these examples, they assume that, whenever there is a voiceless stop in the Proto-Indo-European examples they cite, a glottalic is to be reconstructed for Proto-Nostratic, even

when there are no glottalics in the corresponding Kartvelian and Afrasian forms! This means that the Proto-Nostratic glottalics have the same frequency distribution as the Proto-Indo-European plain voiceless stops. Clearly, this cannot be correct. The main consequence of the mistaken comparison of the glottalized stops of Proto-Kartvelian and Proto-Afrasian with the traditional plain voiceless stops of Proto-Indo-European is that Dolgopolsky and Illič-Svityč are led to posit forms for Proto-Nostratic on the basis of theoretical considerations but for which there is absolutely no evidence in any of the Nostratic daughter languages. Let us look at one or two examples to illustrate the *ad hoc* nature of these reconstructions:

1. On page 17, Dolgopolsky reconstructs a second singular personal pronoun *ṭü > *ṭi 'thou', with an initial glottalized dental, on the basis of data from Indo-European, Afrasian (Dolgopolsky uses the term 'Hamito-Semitic' for this language family), Uralic, and Mongolian. When one looks at the attested forms in the daughter languages, one cannot find a single form anywhere that begins with a glottalized consonant. Indeed, in natural languages having glottalized consonants, these sounds tend to be underrepresented in pronoun stems and inflectional affixes. What, then, is the basis for the reconstruction *ṭü? — nothing more than an *ad hoc* rule set up by Illič-Svityč.
2. Also on page 17, Dolgopolsky reconstructs an interrogative stem *ḳo- 'who?'. As in the preceding example, there is no evidence to support the reconstruction of an initial glottalized velar in this stem.
3. On page 79, no. 100, Dolgopolsky sets up a Proto-Nostratic *ḳVRVHṗ/pV 'piece of leather (used esp. as footwear)'. Again, we find an initial glottalized velar in the reconstructed form, without a shred of evidence in the cited material to back up this reconstruction. Apparently, the basis for this reconstruction is the assumption that a plain voiceless stop in Proto-Indo-European always implies a glottalic in Proto-Nostratic.

Do these criticisms invalidate *in toto* the cognate sets proposed by Dolgopolsky and Illič-Svityč in which glottalics in Kartvelian and Afrasian appear to correspond to plain voiceless stops in Indo-European? Well, no, not exactly — it is not quite that simple. In some cases, the etymologies are correct, but the Proto-Nostratic reconstructions are wrong. This applies to all of the examples cited above — for the second person personal pronoun, I would reconstruct Proto-Nostratic *tʰi, in place of *ḳo- 'who?', I would reconstruct Proto-Nostratic *kʷʰa-, and in place of *ḳVRVHṗ/pV 'piece of leather (used esp. as footwear)', I would reconstruct Proto-Nostratic *kʰVr-Vpʰ-. Other examples adduced by Dolgopolsky and Illič-Svityč admit alternative explanations, while still others are questionable

from a semantic point of view and should be abandoned. Once the questionable examples are removed, there is an extremely small number (no more than a handful) left over that appear to support their position. However, compared to the massive counter-evidence in which glottalized stops in Kartvelian and Afrasian correspond to similar sounds (the traditional plain voiced stops) in Proto-Indo-European, even these residual examples become suspect (they may be borrowings or simply false cognates). Finally, there are even some examples where Dolgopolsky's and Illič-Svityč's comparison of glottalized stops in Proto-Kartvelian and Proto-Afrasian with plain voiceless stops in Proto-Indo-European is correct. This occurs in the cases where two glottalics originally appeared in a Proto-Nostratic root: *C'VC'-. Such roots are preserved without change in Proto-Kartvelian and Proto-Afrasian, while in Proto-Indo-European, they have been subject to a rule of regressive deglottalization: *C'VC'- > *CVC'-.

These disagreements, however, are not serious, and they in no way undermine or even diminish the work done by Dolgopolsky and Illič-Svityč, nor do the disagreements in any way invalidate the existence of the Nostratic macrofamily. Very few linguists doubt the existence of an Afrasian (also called Afroasiatic, Hamito-Semitic, or Semito-Hamitic) language family. And yet, there are three separate reconstructions of the Proto-Afrasian phonological system. First, there is the system of Vladimir Orël and Olga Stolbova (1995, xxi–xxiv); next, that of Christopher Ehret (1995, 55–67); and, last, that of Igor M. Diakonoff (1992, 65–97). In some cases, such as in the sibilants and affricates, each of these scholars establishes very different sound correspondences. Diakonoff and Ehret reconstruct labialized velars, but Orël & Stolbova do not. Diakonoff sets up a vertical vowel system consisting of *ə and *a, while Orël & Stolbova posit the vowels *a, *e, *i, *o, *u, and *ü and Ehret sets up five short vowels and five long vowels: *a, *aa, *e, *ee, *i, *ii, *o, *oo, *u, *uu. Sometimes these scholars arrive at different reconstructions even though they cite the same data from the daughter languages. I view the disagreements between Dolgopolsky and Illič-Svityč, on the one hand, and myself, on the other hand, as no more serious than the disagreements regarding the reconstruction of the Proto-Afrasian phonological system.

I would like to make one last point concerning the table of correspondences: Dolgopolsky compares the reconstructed phonological systems of Proto-Kartvelian, Proto-Indo-European, Proto-Uralic, and Proto-Dravidian, but he does not include Proto-Afrasian or Proto-Altaic. In the case of Afrasian, he lists Semitic, Egyptian, and Berber separately (presumably, Proto-Semitic, Proto- or pre-Egyptian, and Proto-Berber since the sounds are preceded by an asterisk),

but not Cushitic, Omotic, or Chadic. In the case of Altaic, he treats Turkic, Tungus, and Mongolian separately in the table of correspondences. However, in the examples, he usually gives Proto-Altaic reconstructions, though not Proto-Afrasian. Why is there not more consistency here or at least an explanation?

Now let us turn to the heart of Dolgopolsky's book, namely, the sections on habitat (where and when?), social organization (kinship), and material culture. We will begin by examining each of the etymologies proposed by Dolgopolsky:

1. *ʔibrE 'fig tree': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

2. *ĉ[i]bVɣV (or *ĉ[i]bVʕV) 'hyena': this etymology is plausible. I would reconstruct a Proto-Nostratic root *tʰʼib- 'hyena', to which Afrasian, Dravidian, and Altaic have added different suffixes — it is very important to understand Proto-Nostratic root structure patterning and to be able to distinguish between roots and affixes and to explain what has happened in each of the daughter languages. In this regard, Afrasian is particularly important since it is clearly the most ancient branch of Nostratic — it was the earliest branch to split off from the rest of the Nostratic speech community. Thus, Afrasian may be presumed to have preserved some very archaic features, and indeed it does, root structure patterning being one of them.

3. *ʔ[ü]ɾVwV 'large feline': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

4. *SiwVŋgE 'leopard': this etymology is not convincing.

5. *ʔoɾ[u] 'antelope (male), deer': the Proto-Afrasian stem is *ʔar- 'ram, goat' (cf. Orël & Stolbova 1995, 68, no. 694) and should, therefore, be removed from this etymology. On the basis of the Dravidian and Altaic material cited by Dolgopolsky, I would reconstruct Proto-Nostratic *ʔurʸ-/*ʔorʸ- 'deer'.

6. *maŋ[g]V or *maN[i][g]V 'monkey': this etymology is plausible. I would reconstruct Proto-Nostratic *maŋ-g- 'monkey'.

7. *šüŋU 'snow': this etymology is possible, though highly speculative. A Proto-Nostratic *šiŋ- (or possibly *šuŋ-) may be reconstructed, to which Indo-European has added the suffix *-gʷ- > *šiŋ-gʷ- > *šŋi-gʷ- (through metathesis, as proposed by Dolgopolsky), which, in turn, > *sneig̑ʰh- (using traditional transcription).

8. *čaĺ[U]gV 'snow, hoarfrost': this etymology is plausible. Note also the following Dravidian cognates: Tamil caḷi 'cold, chilliness'; Kannaḍa caḷi, cali,

saḷi 'coldness, cold, coolness, chill, frost, snow'; etc. (cf. Burrow & Emeneau 1984, 211, no. 2408). I would reconstruct Proto-Nostratic *t^{yh}al^y- 'snow, frost'.

9. *č[a]RʔV 'hoarfrost' > 'frozen snow': this etymology is plausible. I would reconstruct Proto-Nostratic *t'^{y}ar- 'hoarfrost'.

10. *ḳir[u]qa 'ice, hoarfrost; to freeze': the Indo-European forms should be removed — they are probably ultimately related to other Indo-European words meaning 'hard, hard surface, crust' (cf. Buck 1949, §1.77 ice). On the other hand, the following Dravidian forms can be added: Parji girgira 'cold'; Kuṛux kīrnā 'to be cold, to feel cold'; etc. (cf. Burrow & Emeneau 1984, 144, no. 1568). I would reconstruct Proto-Nostratic *k'ir- '(vb.) to freeze, to make cold; (n.) ice, frost'.

11. *Sah[i]bV 'saline earth, desert': neither the semantics nor the phonology is plausible, and, therefore, this etymology must be rejected.

12. *tälwA or *talwä 'cold season, rain': Proto-Indo-European *del- probably meant something like 'to drip, to fall in drops, to sprinkle, to wet, to moisten' and not 'to rain', though this is the semantic development in Armenian. This is the source of English tallow. The Indo-European forms have no connection with 'winter'. This etymology must be rejected.

13. *yamV 'water body, water': this is a plausible etymology. I would reconstruct Proto-Nostratic *yam- 'body of water'.

14. *morE 'water body': this is a plausible etymology. I would reconstruct Proto-Nostratic *mar- 'any body of water: lake, sea'.

15. *qaRp/p̓V 'to harvest cereal': Hittite ḫar-pa-aš appears to be an Akkadian loan (cf. Puhvel 1984, vol. 3, 183–4). This etymology is not convincing.

16. *ʒükV or *ʒukE 'edible cereals, harvest (of wild plants)': this etymology is not convincing.

17. *galV 'cereals': the Indo-European forms cited by Dolgopolsky probably do not go back to Proto-Indo-European (cf. Puhvel 1984, vol. 3, 35–9). The semantics are weak. Therefore, this etymology must be rejected.

18. *χäntV 'kernel, grain': the only Hittite form I can find in Puhvel (1984, vol. 3, 263–5) that comes close to what Dolgopolsky cites, namely, ḫattara-, means 'prick, awl'. The form cited by Dolgopolsky is listed, however, by Tischler (1977, vol. 2, 220). In spite of attempts to come up with an Indo-European etymology for ḫattar, it is more likely to be a borrowing from a non-Indo-European language. The Dravidian forms cited by Dolgopolsky go back to pre-Dravidian *andi not *antV. This etymology must be rejected.

19. *mälge 'breast, female breast': this etymology is plausible, but the Proto-

Nostratic root is *mal- 'to draw (out), to pull (out), to suck (out)' (cf. Bomhard & Kerns 1994, 672–3, no. 552).

20. *ħalbV (or *χalbV) 'white': Dolgopolsky is correct in questioning Hittite alpaš 'cloud' — it probably is not related to the other Indo-European forms cited by Dolgopolsky (cf. Puhvel 1984, vol. 1, 37–8). I would remove the Dravidian material and reconstruct a Proto-Nostratic *ħal-b- 'white'.

21. *mayẑV 'tasty beverage': neither the semantics nor the phonology is plausible, and, therefore, this etymology must be rejected. Proto-Indo-European *mel-i-t 'honey' is to be compared with Proto-Afrasian *mal(ab)- 'honey, mead' (cf. Bomhard & Kerns 1994, 657, no. 535).

22. *ḳadV 'to wicker, wattle' ('wall, building'): Dolgopolsky's etymology is better, at least in part, than what I proposed in Bomhard & Kerns 1994, 496–7, no. 344. There is a problem, however — Dolgopolsky has lumped together two separate roots, though it is fairly easy to sort them out. The first root is Proto-Nostratic *k'ad- 'to form, to fashion, to build', which is the source of the Afrasian, Kartvelian, and Dravidian forms cited by Dolgopolsky. The second root is Proto-Nostratic *kʰatʰ- 'to plait, to weave, to twist', which is the source of the Indo-European and Turkic forms, plus the following forms from Dravidian: Gondi kattĭ, ketti 'mat', (?) kaṭṭī 'palmleaf mat'; Konḍa kati 'wall'; Kuwi katti 'mat-wall', kati 'wall' (cf. Burrow & Emeneau 1984, 113, no. 1205). The following Semitic forms probably belong with this second root as well: Arabic katafa 'to fetter, to shackle, to tie up'; Geez katafa 'to bind firmly, to tie up'; Soqoṭri kə́tof 'to tie (to the top of the back)'; metathesis in Mandaic kpt 'to tie, to bind' and Aramaic kəφaθ 'to tie, to bind'.

23. *ḳoʔć/cV 'basket': so many different stems are mixed up here that this etymology cannot stand as written.

24. *p̣/pat[a] 'basket, box': only the Uralic and Dravidian forms belong together — the Afrasian and Indo-European forms should be removed. The original meaning can then be narrowed to 'cauldron, pot'. I doubt that this goes back to Proto-Nostratic.

25. *ʕ/γaŕḲ[u] 'sinew': this etymology is not convincing. In Bomhard & Kerns 1994, 532, no. 384, I derived the Indo-European forms for 'bow, arrow' from a Proto-Nostratic stem meaning 'to move, to set in motion' (cf. Buck 1949, §20.25 arrow — Buck notes: 'A few of the words for "arrow" are derivs. of those for "bow", either through the medium of a verb "shoot with the bow, shoot arrows", or directly as "belonging with the bow"'. Also note Buck (1949, §20.24 bow), where he says: 'The derivation of the

words for "bow" from verbs for "bend" is, as to be expected, widespread. Other connections are for "stretch, draw" or names of kinds of wood furnishing the material'). The semantic connections proposed by Dolgopolsky in this and in some of the following etymologies are a little too shaky for my taste.

26. *yaŋ[y]V 'sinew, tendon', 'bow (weapon)': this etymology is not convincing.

27. ḷoŋḲa 'to bend': this is a plausible etymology, though I am not entirely satisfied with some of the material cited by Dolgopolsky nor with the phonology. The Afrasian forms are suspect — the Egyptian form should unequivocally be removed, while the Hausa form appears to be isolated. There are also problems with the Uralic forms. Most Uralicists would reconstruct initial *l and not *ḷ. The Uralic forms, if native, are probably derived from the stem that Rédei (1986–88, 256) reconstructs as *lɣŋkɜ 'to split, to crack'. Finally, there may be loanwords involved here.

28. *ńoɣ/ʕlE (or *ńaɣ/ʕlE) 'sinew; to tie together': this etymology is not convincing.

29. *p/p̓ešqE ~ *p/p̓eqšE 'spear': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

30. *ṭul[i][g]V 'to spread like a veil/net, cover with a veil/net, catch with a net': this etymology is not convincing.

31. *goki 'track' ('way'): the Uralic and Altaic forms may be related, but the Afrasian forms should be removed. This is not a strong etymology.

32. *[d]EʕSV or *[d]Eɣ/χSV 'to follow the tracks': this etymology is not convincing.

33. *šubyV 'spike, spear; to pierce': Arabic sabba 'to cut, to wound' probably is related to sabal 'spear'. We can set up an earlier biconsonantal root *šab-, which, in turn, has been extended to create two different roots in Arabic: *šab-ab- (reduplication of the second consonant) and *šab-al- (-al- suffix). See Orël & Stolbova (1995, 456, no. 2159), for additional Afrasian cognates. Though Orël & Stolbova reconstruct an *a in the first syllable of the Proto-Afrasian stem, the original vowel is not certain. For the time being, Dolgopolsky's etymology can be accepted, though I seriously doubt that the Altaic forms belong. I would reconstruct a Proto-Nostratic *šub- '(vb.) to pierce; (n.) spike, spear'.

34. *ṭap̓V 'to hit (the target)': only the Uralic and Altaic forms cited by Dolgopolsky have any chance of being cognates, though loanwords are also possible here.

35. *mentʼV 'to miss one's aim': though the semantics are weak, this etymology may tentatively be accepted. Note that there is no evidence to support reconstructing a glottalized dental in the Proto-Nostratic form.

36. *gurHa 'antelope, male antelope': this is a plausible etymology, though I would reconstruct an initial voiced labialized velar and the vowel *a on the basis of the Southern Cushitic forms cited by Dolgopolsky: Proto-Nostratic *gʷar(H)- 'antelope'. Note that Orël & Stolbova (1995, 203, no. 898) reconstruct Proto-Afrasian *gar-/*gawar- 'antelope' (Orël & Stolbova do not reconstruct labialized velars for Proto-Afrasian). The following Dravidian forms should be added to this etymology: Kolami kori 'antelope'; Parji kuri 'antelope'; Gondi kurs 'deer, antelope'; etc. (cf. Burrow & Emeneau 1984, 161, no. 1785).

37. *ʔEl/li 'deer': the Afrasian forms should be removed. The rest of the etymology can stand as it is. I would reconstruct Proto-Nostratic *ʔil- 'hoofed, cud-chewing animal'.

38. *boča 'young deer': this etymology is plausible, though the Afrasian material cited by Dolgopolsky must be removed.

39. *buK̲a 'bovine(s)': the original meaning here is probably something like 'male of small, hoofed animals: he-goat, buck'. Note that Orël & Stolbova (1995, 75, no. 310) reconstruct Proto-Afrasian *bok̲ar- 'cattle', which, in turn, they derive from *bok̲- 'goat'. The Proto-Indo-European cognate is *bʰŭĝo-s 'buck' (cf. Pokorny 1959, 174), which Gamkrelidze & Ivanov (1995, vol. I, 501) reconstruct as *bʰuk̂'o-s 'goat' (with glottalized palato-velar!). The Slavic forms cited by Dolgopolsky are either loanwords or have an imitative origin (cf. Buck 1949, §3.21 bull). I would reconstruct Proto-Nostratic *buk'-(/*bok'-) 'male of small, hoofed animals: he-goat, buck'. There is some confusion here with forms listed below under no. 45, *bukEγ/ʕ- 'billy goat, ram'.

40. *čoma 'aurochs, wild bovine': this etymology is plausible.

41. *č[a]w[V]rV (or *čurV) 'bull, calf': this etymology is plausible, though not without problems. First, Dolgopolsky is surely correct in seeing Proto-Indo-European *taṷro-s as a borrowing. It is difficult to reconstruct the Proto-Indo-European antecedent of the other Indo-European forms cited by Dolgopolsky, though *steṷros 'steer' or something very similar is probably the best that we can do. If this word is ancient in Indo-European and not a derivative of the root *tĕṷ- 'to swell', as some have maintained, then Dolgopolsky's etymology can be accepted. In my opinion, *steṷros is not a derivative of *tĕṷ-. I would reconstruct Proto-Nostratic *tʸʰaw-r- 'bull, steer'.

The Altaic forms should be removed.

42. *γ/gawV 'wild sheep/goats': this etymology is plausible, but the Altaic forms are questionable. I would remove the Altaic forms and reconstruct Proto-Nostratic *ʕuw-(/*ʕow-) 'flock or herd of small animals: sheep and goats', and I would add Proto-Finno-Ugrian *u-če (< *uwi-če) 'sheep' (cf. Rédei 1986–88, 541).

43. *diqa 'goat': this etymology cannot stand as written and needs to be re-worked. According to Fähnrich & Sardshweladse (1995, 102), the Proto-Kartvelian form is to be reconstructed as *daq- 'goat'. This can be compared with the following Dravidian forms: Tamil takar 'sheep, ram, goat, male of certain animals'; Kannaḍa tagar 'ram'; Tuḷu tagaru 'ram'; etc. (cf. Burrow & Emeneau 1984, 259, no. 3000). I would reconstruct Proto-Nostratic *daqʰ- 'male of certain animals: billy goat, ram'. The remaining material cited by Dolgopolsky from other languages must be removed.

44. *k[ä]ɕV 'wild goat': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

45. *bukEγ/ʕ- 'billy goat, ram': this etymology is not convincing. See comments under no. 39 above.

46. *ʕVp̂VrV 'wild boar': this is a plausible etymology, though, once again, there is no basis for reconstructing a glottalized labial in the Proto-Nostratic form. The Balto-Slavic forms should be removed. I would reconstruct Proto-Nostratic *ʕVpʰ-r- 'wild boar'.

47. *ʕir[i] '(male, young) artiodactyl': only the Kartvelian and Dravidian forms can possibly be cognates — the Afrasian and Indo-European forms are too divergent semantically to be given serious consideration. I would reconstruct Proto-Nostratic *Hir- 'deer, stag'.

48. *p̂oḵü 'pack, wild cattle': there are too many uncertainties about the Indo-European side of this comparison for me to be comfortable with this etymology. The Proto-Indo-European stem may originally have meant 'sheep' (cf. Buck 1949, §3.15 livestock), in which case this etymology would be far less attractive. The semantic development may have been 'sheep' > 'any small domestic animal owned as property' (it was at this stage of semantic development that 'cattle' began to figure in the equation) > 'property (in general)' (cf. Lehmann 1986, 102–3 for argumentation both for and against this position). In any case, glottalics should not be reconstructed for the Proto-Nostratic form.

49. *gadi (or *gati ?) 'kid, young goat': the Afrasian and Dravidian comparison seems solid, but the Indo-European forms can only be made to fit by throw-

ing sound laws out the window. I would reconstruct Proto-Nostratic *gad-y/i- 'kid, young (of any small, hoofed animal)'.

50. *buyẑV 'fur-bearing animal': this etymology is not convincing.

51. *?/hUrV(-ba) 'squirrel or a similar animal': this etymology is not convincing.

52. *ḵun/ŋV(ŕV) 'small carnivore (marten, polecat, wild cat or sim.)': while the semantics are attractive, the phonology is not plausible. Consequently, this etymology must be rejected. The Proto-Kartvelian form implies an original labialized velar: Proto-Kartvelian *k'wenr- < Proto-Nostratic *k'ʷan-r-/*k'ʷən-r-. A labialized velar would have been preserved in Proto-Indo-European and Southern Cushitic. I suspect that we may be dealing with a Wanderwort here.

53. *diḵ- 'edible cereals or fruits': though the semantics could be tighter, this etymology is plausible. I would reconstruct Proto-Nostratic *dik'- 'edible cereals or fruits'.

54. *ʒ/ʒ́ugbV '(a kind of) fig tree': the semantics are strong, but the phonology is weak. Therefore, this etymology must be rejected.

55. *b[i]ŕ[uw]q̇a '(a kind of) edible fruit': Fähnrich & Sardshweladse (1995, 51) reconstruct Proto-Kartvelian *berq̇en- 'wild pear' or 'wild plum'. Phonologically, this is a perfect match with Arabic burḵūḵ, birḵūḵ 'apricot, yellow plum' (note also birḵarūḵ 'plum'), which are related to Akkadian barraḵītu 'a plant', Hebrew *barḵōn- 'thorny plant, brier', and Jewish Palestinian Aramaic barḵānayyā 'thorny plant'. The Dravidian material cited by Dolgopolsky is difficult to fit in both semantically and phonologically — I would leave it out. On the basis of the Afrasian and Kartvelian material alone, I would reconstruct Proto-Nostratic *bVr-q'- 'a plant and its fruit'. If the Indo-European forms truly belong here, they are derived from the same root (that is, *bVr-), but with different extensions: Proto-Indo-European *bhrū ĝ- (< *bhr-uə̯-ĝ-) 'fruit'.

56. *ḴuSV 'nut': this is a solid etymology, but it may just be Eurasiatic (as defined by Greenberg) and not Nostratic. I would not reconstruct an initial glottalic.

57. *LVʒV (or *LVwʒV) '(a kind of) nut': this etymology is not convincing.

58. *buṭV 'pistachio tree/nut': this etymology is plausible. I would reconstruct Proto-Nostratic *but'- 'pistachio tree/nut'.

59. *mar[y]V '(mul-, black-)berries': I like this etymology better than what I proposed in Bomhard & Kerns (1994, 655, no. 532). I would reconstruct Proto-Nostratic *mar-(y-) 'mulberry, blackberry; mulberry bush'.

60. *m[o][y]ẑV '(a kind of) berry': this etymology is not convincing.

61. *ḲERV 'fruit of a leguminous plant': this etymology is not convincing.

62. *m[u]rḳV(-ŋḲV) 'root, root-crops, edible roots': this etymology is not convincing.

63. *mol/ḷV 'to pound, gnaw/smash into pieces': this is a solid etymology. I would reconstruct Proto-Nostratic *mul-(/*mol-) 'to rub, to crush, to grind'.

64. *ʔäPHi 'to bake, to prepare food on hot stones': this is a plausible etymology. I would reconstruct Proto-Nostratic *ʔapʰ- 'to burn, to be hot, to cook, to boil, to bake'.

65. *qubźV (< *qupźV) 'food made of ground cereals', 'flour': this etymology is not convincing.

66. *[ʔ]omśa 'meat': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

67. *q̇[u]ʒV 'intestines; pluck (as food)': this etymology is not convincing.

68. *ʔayŋo 'marrow, brain, soft fat of animals' ('to smear, anoint'): this etymology is not convincing.

69. *mag[i]za 'liver': this etymology is not convincing.

70. *ń[a]ḲU 'soft parts of an animal's body (liver, marrow, suet)': this etymology is not convincing.

71. *muŋa(-t/dV) 'egg': this is a good etymology. Note, however, that the Proto-Uralic form is to be reconstructed as *muna 'egg, testicle' and not *muŋa (cf. Rédei 1986–88, 285–6). I would reconstruct Proto-Nostratic *mun- 'egg, testicle'.

72. *ʔ[a/o]ħ/χi or *ʔuħ/χi 'egg' (or 'white of egg'): this is a very attractive etymology. However, it must be noted that Arabic ʔawḥ- 'white of egg' is isolated within Semitic (cf. Cohen 1970, 12). Moreover, even though the Proto-Indo-European form is traditionally reconstructed as *ōu̯iom 'egg', no single reconstruction can account for all of the forms found in the daughter languages. So there are difficulties with this etymology. I would hesitatingly reconstruct Proto-Nostratic *ʔaw-ħ- 'egg' (or 'white of egg'). If this is a valid etymology, it would imply that the Proto-Indo-European form is to be reconstructed as $*_{ə_1}ŏu̯_{ə_2}iom$ 'egg'. The Old Japanese form should be removed.

73. *ḴolV '(large) fish': this is a plausible etymology. The material from the Indo-European daughter languages requires that an initial labialized velar be reconstructed at both the Proto-Indo-European and Proto-Nostratic level. As usual, there is nothing to support reconstructing an initial glottalic. I would reconstruct Proto-Nostratic *kʷʰal- '(large) fish'. I would also

substitute the following Dravidian forms for those cited by Dolgopolsky: Tuḷu kalkorè 'a kind of fish'; Kuṟux xalxō 'a kind of fish, shad fish' (cf. Burrow & Emeneau 1984, 123, no. 1314).

74. *doTgiHU 'fish': this is a plausible etymology. The Uralic form does not fit phonologically — perhaps it is to be analyzed as a reduplicated stem: *totke < *to-tke < pre-Uralic *to-toke (??). I would reconstruct Proto-Nostratic *dug-(/*dog-) 'fish'. The following developments may be assumed for Mongolian: *dug-i- > *dügi- > *digi- > *dʸiga- > *ǯiga- (> *ǯaga-).

75. *men/ni '(a kind of) fish': this is a plausible etymology. The Proto-Indo-European stem may have contained a laryngeal: *mn̥ə̯-i- '(a kind of) fish'. Assuming a laryngeal in pre-Dravidian would also account for the long vowel in the Dravidian forms: *mīṇ- < *minH-. I would reconstruct Proto-Nostratic *min-H- '(a kind of) fish'. The Uralic forms do not belong here.

76. *p/ṗayV '(a kind of) fish': this is a plausible etymology. I would reconstruct Proto-Nostratic *pʰay- '(a kind of) fish'.

77. *ṭüRV 'hard-roe': this is a plausible etymology. An initial glottalic is not warranted on the basis of the data cited by Dolgopolsky. I would reconstruct Proto-Nostratic *tʰur-(y/i-) 'hard-roe'.

78. *[ḳ]ür[w]v or *[ḳ]ur[w]E 'hard-roe, spawn': this is a plausible etymology. The Georgian form implies an initial labialized velar in Proto-Nostratic, and there may have been an initial labialized velar in Proto-Indo-European as well, though it is difficult to tell on the basis of the forms found in the daughter languages. In my opinion, the lack of glottalization in the initial consonant in Georgian is regular. I also take the Georgian vowel to represent the original vocalism of this stem. I would reconstruct Proto-Nostratic *kʷʰir-(w-) 'hard-roe, spawn'.

79. *madu 'honey': this is a solid etymology. I would reconstruct Proto-Nostratic *mad-w/u- 'honey, mead'. The absence of Uralic *mete 'honey' from this etymology is too glaring to be an oversight. Does Dolgopolsky consider it to be a borrowing (from Indo-European perhaps)?

80. *č[ü]rV 'flint-stone, knife': this is a plausible etymology. Note that Orël & Stolbova (1995, 120, no. 514) reconstruct Proto-Afrasian *čur- 'flint, flint knife'. I would reconstruct Proto-Nostratic *t'ʸur- 'flint, flint knife'.

81. ? *buRV 'flint': this is a possible etymology. However, Orël & Stolbova (1995, 67, no. 266) reconstruct Proto-Afrasian *ber- 'to cut' as the source of the Afrasian forms cited by Dolgopolsky. I would compare this with Proto-Indo-European *bher- 'to work with a sharp tool, to cut, to split' (cf. Pokorny 1959, 133–5) and Proto-Uralic *parɜ- 'to scrape, to cut, to carve'

(cf. Rédei 1986–88, 357). On this basis, I would reconstruct Proto-Nostratic *bar- 'to cut, to cut off, to cut down; to carve, to scrape'.

82.   *ti/e[ʔa]ĺo (or *tü[ʔa]ĺV) 'stone, heap of stone': this etymology is not convincing.

83.   *kiw[V]hE 'stone': this is a plausible etymology. I would reconstruct Proto-Nostratic *kʰiw- 'stone'.

84.   *boruʕ/γV 'trunk' ('log'): this etymology is not convincing.

85.   *ćUļV 'stalk, stick': the Finno-Ugrian and Dravidian forms may be related but not the others. I would cautiously reconstruct Proto-Nostratic *t'ʸulʸ- 'stalk, stick'.

86.   *ḳožʕV 'tree trunk': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

87.   *kaṇV(-bV) 'stalk, trunk' ('log'): the Indo-European forms are too divergent semantically to be given serious consideration, and, therefore, they should be removed. Perhaps better Indo-European cognates would be *k̑ent- 'prick, point, spike' and *k̑entrom 'point, spike, spur' (cf. Mann 1984–87, 609; Walde 1927–32, vol. I, 402). In any case, on the basis of the remaining material cited by Dolgopolsky, I would reconstruct Proto-Nostratic *kʰanʸ- 'stalk, stick'.

88.   *žyRV 'pole, long piece of wood': this etymology is not convincing.

89.   *ʒirγu/ü 'vein, sinew': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

90.   *ʔežekU 'thorn, hook' (< 'tooth'): this etymology is not convincing.

91.   *ḳ[a]k[w]V 'tooth, claw', 'hook': it appears to me that two separate stems need to be recognized here. The Proto-Kartvelian form finds an exact match in Indo-European. I would reconstruct Proto-Nostratic *k'ak'- 'hook', which would have been preserved intact in Kartvelian (Fähnrich & Sardshweladse 1995, 182 reconstruct Proto-Kartvelian *ḳaḳ-), but which would have yielded Proto-Indo-European *kʰak'- (> *kʰok'- [traditional *kog-]; cf. Pokorny 1959, 537–8 *keg- 'hook, peg') through a rule of regressive deglottalization. The remaining forms cited by Dolgopolsky go back to a parallel stem *kok(k)V 'hook', using Dolgopolsky's notation (I would write **kʰukʰ-/*kʰokʰ-**).

92.   *toŕV 'bark; to bark (remove the bark), to peel': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected. Proto-Indo-European *der- 'to tear, to rend, to flay' (= *t'er- according to Gamkrelidze & Ivanov's reinterpretation) is related to the following Dravidian forms: Tamil taṛi 'to lop, to chop off, to cut off'; Kannaḍa

taṟi, taṟe 'to strip off, to cut off, to cut'; Kuṟux tārnā 'to fell (tree), to lop off (bough)'; etc. (cf. Burrow & Emeneau 1984, 273, no. 3140). On the basis of the Indo-European and Dravidian material, I would reconstruct Proto-Nostratic *t'ar- 'to tear, to rend, to cut, to sever'.

93.   *Ḳa[pʔ/ʕ][E] 'bark': this is a possible etymology, though the phonology is a little too lax for my taste.

94.   *ḲayerV 'bark, film': the Altaic forms do not fit phonologically and must, therefore, be removed. Setting up a pre-Uralic *kayerV is purely *ad hoc.* I also doubt that Finno-Ugrian *kerV belongs here. The remaining forms cited by Dolgopolsky can be derived from Proto-Nostratic *kʰar- 'skin, hide; bark, rind' (no initial glottalized velar).

95.   *ṭo[w]q̇a or *ṭoq̇-wV 'hide, skin': in Bomhard & Kerns (1994, 315–16, no. 135), I derived the Kartvelian forms from Proto-Nostratic *t'aq'- '(vb.) to cover, to hide; (n.) covering' and included Proto-Indo-European *(s)t(h)eg- 'to cover' and Proto-Afrasian *t'ak'- 'to cover, to obscure'. The Proto-Indo-European form would be *(s)tʰek'- in Gamkrelidze & Ivanov's notation. Proto-Indo-European *(s)tʰek'- can be derived from earlier *(s)t'ek'- through a rule of regressive deglottalization. On the basis of this alternative proposal, I cannot accept Dolgopolsky's etymology.

96.   *ṭal[U]ya 'skin, pelt': this is a possible etymology, though there is nothing in the material cited by Dolgopolsky to warrant reconstructing an initial glottalized dental. I would reconstruct Proto-Nostratic *tʰal- 'skin, hide'.

97.   *Ḳaĺ[ü] 'skin, film, bark': this is a possible etymology, though, once again, there is nothing in the material cited by Dolgopolsky to warrant reconstructing an initial glottalized velar. I would reconstruct Proto-Nostratic *kʰalʸ- 'skin, hide'.

98.   *ḳoRuṗV '(kind of) bark, skin': Orël & Stolbova (1995, 349) reconstruct Proto-Afrasian *ḳur- 'skin, bark'. Note also Ehret (1995, 239, no. 426): *-k'ûur-/*-k'âar- 'to be covered, to go under cover', source of Oyda k'uːro 'bark' and Male k'urubi 'skin' (both Omotic). As in no. 10 above, the Indo-European forms should be removed — their underlying meaning is 'hard, hard surface, crust'. Finally, the Altaic forms should be removed as well — the semantics do not match. We are thus left with a rather shaky etymology based on the comparison of a single form from Kartvelian and several forms from Afrasian.

99.   *Ḳoẑ̂V 'to skin, to bark': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

100.   *ḲVRVHṗ/pV 'piece of leather (used esp. as footwear)': this is a possible

etymology. The Afrasian and Dravidian forms do not point to a laryngeal in Proto-Nostratic, but the Indo-European forms do: Proto-Indo-European *kerəp-/*krēp- < *kerə̯p-/*kreə̯p-. On the basis of the evidence from Afrasian and Dravidian, I would reconstruct Proto-Nostratic *kʰVr-Vpʰ- 'piece of leather (used especially as footwear)' (no initial glottalized velar). Different extensions are found in the Proto-Indo-European form: *kerəp-/*krēp- < *kerə̯p-/*kreə̯p- < *kʰVr-VH-pʰ-.

101. *p̌iχ/γyA 'sharp bone, sharp tool': this etymology is not convincing.

102. *pišV 'bile': this is a plausible etymology. I would reconstruct Proto-Nostratic *p'iš- 'bile', with initial glottalized labial on the basis of the Proto-Indo-European form.

103. *[t̥]äχl/l̥a ~ *[t̥]äl/l̥χa or *[t̥]aχl/l̥E ~ *[t̥]al/l̥χE 'spleen': this is a possible etymology, though I seriously doubt that the Kartvelian forms belong. On the basis of the Afrasian and Altaic material, I would reconstruct Proto-Nostratic *tʰaħl- 'spleen'.

104. *l[ä/e]p̌A 'spleen': in the Nostratic daughter languages, there are two different stems for 'spleen' that may ultimately be related. In Afrasian, there is *lap- 'spleen' (cf. Orël & Stolbova 1995, 358, no. 1651), and this matches Proto-Finno-Ugrian *läppɜ 'spleen, milt' (cf. Rédei 1986–88, 242). In Indo-European, on the other hand, we find a stem that has been variously reconstructed as *sp(h)elĝh(en, -ā), *splenĝh-, *splĕ̆ĝh- 'spleen' (cf. Pokorny 1959, 987). These stems appear ultimately to be based on a root *(s)pel- 'spleen', to which various extensions have been added. This matches Proto-Dravidian *palla 'spleen' (cf. Burrow & Emeneau 1984, 355, no. 3995). We can unite these into a single etymology by assuming metathesis in one of the sets. Given that Highland East Cushitic, within Afrasian, has a stem that matches Indo-European and Dravidian (Proto-Highland East Cushitic *hi-fella 'spleen' — *hi- is a prefix, and *-e- is secondary), I suspect that it was the order of the consonants in Indo-European and Dravidian that was original and that metathesis took place in Uralic and, in part, in Afrasian. On this basis, I would reconstruct Proto-Nostratic *pʰal- 'spleen'. This means that Dolgopolsky's etymology needs to be reworked.

105. *t̥Eqme 'sinciput, crown of the head': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

106. *[g]edi 'occiput, hind part': this is a possible etymology, though the phonology is a bit shaky.

107. *ɢo/atK̥E 'popliteal space (back of the knee), armpit': though the semantics

are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

108. *n̥iK̬a 'jugular vertebra, neck, nape of the neck': this is a possible etymology, but it is only attested in Eurasiatic. The Indo-European forms are difficult to fit in phonologically, and, therefore, they should be removed. I would reconstruct Proto-Eurasiatic *nʸikʰa 'jugular vertebra, neck, nape of the neck'.

109. *kälu/ü 'a woman of the other exogamous moiety': this is a strong etymology. I would reconstruct Proto-Nostratic *kʰal-w/u- 'female relative'. The initial *ĝ- in the Proto-Indo-European form is irregular — I would expect *ĝ- instead. This may mean that the Indo-European form is a false cognate. In Bomhard & Kerns (1994, 438–9, no. 283), I attempted to show that Proto-Indo-European *ĝ(e)lōu̯- 'husband's sister' (cf. Pokorny 1959, 367–8; Mallory & Adams 1997, 521–2 *ĝl̥h₃-u̯os- 'husband's sister') is to be derived from the same root found in Greek γάλα 'milk', Latin lac 'milk', and Hittite galattar, galaktar 'soothing substance, balm, nutriment', gala(n)k- 'to soothe, to satiate, to satisfy' (cf. Puhvel 1984, vol. 4, 18–20), all ultimately from an unattested *(ĝel-)/*ĝl̥-/*ĝ(e)l- 'to suckle, to nourish'. I assumed the same semantic development as in Greek τηθίς 'father's or mother's sister, aunt' and Sanskrit dhénā 'female', both of which are derived from Proto-Indo-European *dhē(i̯)- 'to suck, to suckle' (cf. Pokorny 1959, 241–2). I then compared the Indo-European forms with the following Semitic forms: Amharic k̬älläbä 'to feed, to provide support, to nourish', k̬älläb 'food, supplies, rations, stipend'; Tigrinya k̬älläbä 'to feed'; Argobba k̬älläba 'to feed'; Gurage k̬älläbä 'to support by providing food, to feed'.

110. *kuda 'a man of the other moiety' (> 'male relative-in-law'): this is a possible etymology, though the sound correspondences are a bit irregular — Proto-Uralic *δ is not equal to IPA [ð]. Rather, it appears to have been some sort of lateral, most likely a fricative lateral [ɬ] or a lateralized affricate [tɬ] — my own research indicates that Proto-Nostratic *tɬʰ- became *ś- (Dolgopolsky writes *ŝ-) initially in Proto-Uralic but *-δ- (= [tɬ]) medially. Finally, I would remove the Kartvelian forms from this etymology.

111. *śeʒA 'a relative of the other moiety' ('father/son-in-law, mother's brother, and sim.'): this is a possible etymology, though the Afrasian forms are too divergent phonologically to be given serious consideration. My interpretation of the sound laws involved here is a little different than Dolgopolsky's interpretation — consequently, I would reconstruct Proto-Nostratic *siʒ-

(/*seʒ-) 'a relative of the other moiety' ('father/son-in-law, mother's brother, and sim.').

112. *[ħ/χV]wäń/nV 'relative (of a younger/the same generation)': this is a possible etymology, though the Egyptian forms do not appear to belong here either semantically or phonologically. I would reconstruct Proto-Nostratic *wan- 'relative through marriage, in-law (male or female)'. In my 1996 book (Bomhard 1996, 217, no. 621), I set up a slightly different etymology on the basis of some of the same forms cited by Dolgopolsky: Proto-Nostratic *wan-/*wǝn- 'first, first-born, eldest': (A) Afrasian: Proto-Highland East Cushitic *wanaa 'first' > Burji wanáy 'first-born', wanawwa 'eldest sister', wanay, wonáy 'eldest brother'; Kambata wana(a) beetu 'first-born' (beetu = 'child'), wanabii 'first'; (B) Uralic: Proto-Finno-Permian *wanša 'old' > Finnish vanha 'old', vanhemmat 'parents'; Estonian vana 'old'; Votyak/Udmurt vuž 'old'; Zyrian/Komi važ 'old'; (?) Proto-Finno-Ugrian *wĭnɜ 'old' > Zyrian/Komi vener 'old'; Hungarian vén 'old'; and (C) Dravidian: Kolami vanna 'brother's wife'; Naikṛi vanna 'older brother's wife'; (?) Koṇḍa oni 'older brother's wife, maternal uncle's daughter (older than person concerned)'; (?) Pengo oni 'older brother's wife'.

113. *n/ŋu/üśV or *n/ŋu/üsyV 'woman (general term)', 'woman of the other moiety': Orël & Stolbova (1995, 406, no. 1887) reconstruct Proto-Afrasian *nüs- 'woman', but the very next entry (1995, 407, no. 1888) is *nüs-'man'. The meaning 'woman' appears to be secondary, which throws doubt on the validity of this etymology. The Kartvelian form is indeed a loan from Indo-European, and Indo-European loans are also found in Northwest Caucasian (cf. Bžedux nǝsa '[father's] brother's wife, daughter-in-law').

114. *Hić/cχV or *-ć/ç-, *-γ/g/h- 'father, head of a family': though the semantics are acceptable, the phonology is not plausible. Therefore, this etymology must be rejected.

115. *ʔediNV 'pater familias' (or 'owner'): this is a possible etymology. I would reconstruct Proto-Nostratic *ʔid-in-/*ʔed-in- 'father, head of family' (or 'owner').

116. *ʔemA 'mother': this is a good etymology. I would reconstruct Proto-Nostratic *ʔima/*ʔema 'mother'.

117. *ʔ[ä]yV (or *h[ä]yV) 'mother' (originally a nursery word): this is a good etymology. Note also Proto-Inuit *ayak 'maternal aunt'. I would reconstruct Proto-Nostratic *ʔay(y)- 'mother, female relative'.

118. ?? *ʔaba ~ *ʔap̓a 'daddy, father' (a nursery word): this is a good etymology.

Note also Proto-Eskimo *ap(p)a 'grandfather'. I would reconstruct Proto-Nostratic *ʔaba 'daddy, father'.

119. *ʕoǫul/ḷV 'child, one's child; to beget, to bear a child': this etymology is not convincing. Note that Orël & Stolbova (1995, 247, no. 1110) reconstruct Proto-Afrasian *ʕigal- 'cow, calf'. In Bomhard & Kerns (1994, 518, no. 365), I compared the Afrasian forms with the following Indo-European forms: Avestan azí 'with young (of cows or mares)'; Sanskrit ahí 'cow'; Middle Irish ag 'ox, cow', ál (< *aglo-) 'litter, brood'; perhaps also Armenian ezn (with e-vocalism) 'ox' — all from Proto-Indo-European *ə₂eĝh- 'with young (of animals)' (cf. Pokorny 1959, 7 *aĝh- 'pregnant animal'; Mann 1984–87, 233 *eĝhis 'ox, cow').

120. *ʔarV 'member of the clan': this is a good etymology. I would reconstruct Proto-Nostratic *ʔar- 'member of one's clan, kinsman'.

121. *ʔarba 'to make magic, to cast spells': this is a possible etymology, though the Afrasian material probably does not belong here. On the basis of the Uralic and Altaic material, I would reconstruct Proto-Eurasiatic *ʔarba 'to make magic, to cast spells'.

122. *ʕ[a]lV 'to burn (esp. sacrifices), use magic means (sacrifices, magic formulae, etc.) to produce a particular result': it appears that two different stems are mixed together here. The Afrasian and Indo-European forms go together well, and the Uralic and Altaic forms go together well, but the Afrasian and Indo-European forms, on the one hand, do not match the Uralic and Altaic forms, on the other. On the basis of Afrasian and Indo-European, I would reconstruct Proto-Nostratic *ʕal- 'to make a fire, to light, to ignite, to kindle, to burn'.

123. *ŝoṭV 'to exercise magic force' (> 'to curse, to bless'): on page 116, this is listed as etymology no. 124, while no. 123, *ʕ/γal/ḷV 'device (esp. a dishonourable one) for doing something', is nowhere explained. *ŝoṭV 'to exercise magic force' (> 'to curse, to bless') is a possible etymology. I would reconstruct Proto-Nostratic *tʰut'-(/*tʰot'-) 'to cast spells, to bewitch, to hex, to curse'.

124. *tulV 'to tell (a story), to pronounce magic/ritual texts': this is not a convincing etymology.

This completes our examination of the etyma proposed by Dolgopolsky. Unfortunately, I have had to be very succinct in my comments — in many cases, I would have liked to have given extensive explanations about why particular etymologies are not convincing. To have done so, however, would have meant

that this paper would have greatly exceeded the size limitations set by the organizers of this symposium.

Now let us summarize our findings, section by section.

1. Where and when?

The first 30 etymologies are devoted to answering this question. Our examination indicates, however, that half of the proposed etymologies in this section are either not convincing or must be rejected for various reasons. Fortunately, enough good etymologies remain to support some of Dolgopolsky's conclusions. But we must be very careful here in drawing conclusions here — the climate in the Near East (and in the rest of the world, for that matter) was different at the end of the last Ice Age from what we find at the present time, which means that we cannot judge what existed then on the basis of what exists now. Nevertheless, there is nothing in the etyma cited by Dolgopolsky to contradict his claim that Proto-Nostratic was spoken in 'Southwestern Asia' (= the Near East). That the speakers of Proto-Nostratic were not familiar with agriculture, animal husbandry and pottery can be reasonably inferred as well, and, it goes without saying, this is precisely what we would expect on the basis of archaeological evidence. However, the claim that the speakers of Proto-Nostratic used bows, arrows and fishing nets cannot be supported by the lexical evidence presented by Dolgopolsky, though the archaeological evidence indicates that bows and arrows have been in use since Palaeolithic times.

2. Hunter-gatherers

Etymologies 31 through 62 are devoted to this topic, about a third of which are not convincing or must be rejected for various reasons. Here, Dolgopolsky has done a fairly good job at identifying some of the fauna that were known to the speakers of Proto-Nostratic, as well as some of the grains, nuts, berries, and fruits that constituted part of their diet.

3. Foods

Etymologies 63 through 79 discuss various foods (above and beyond those already identified in the previous section), along with the fact that the speakers of Proto-Nostratic knew how to pound grains and how to bake (on hot stones). Nearly half of the etymologies in this section were found to be less than convincing

or were rejected outright. From what remains, it is clear that fish, eggs, and honey were part of their diet and that they knew how to pound grains and how to bake (on hot stones).

4. Technological activities

Etymologies 80 through 101 are devoted to technological activities, about a quarter of which are not convincing or must be rejected. The remaining etymologies show that the speakers of Proto-Nostratic had flint knives, hooks, poles, and leather footwear. They used animal skins and the bark of trees.

5. Anatomy

Etymologies 102 through 108 are devoted to anatomy. The valid etymologies include those for bile, the spleen, and the (nape of the) neck.

6. Kinship

Etymologies 109 through 119 discuss kinship terminology. Nearly half of these etymologies are not convincing or must be rejected. Among the convincing etymologies, are those for 'a woman of the other exogamous moiety', 'a relative of the other moiety', 'relative through marriage, in-law (male or female)', 'father, head of family', 'daddy, father', 'mother', and 'member of the clan'. Unfortunately, these kinship terms tell us relatively little about the family structure of the speakers of Proto-Nostratic.

7. The realm of the supernatural

Etymologies 120 through 124 discuss words denoting magic activities. One of these etymologies is not convincing, while another cannot stand as written. The remaining etymologies do indeed point to casting of spells and use of magic.

Even though some of his conclusions cannot be supported on the basis of the evidence he presents, Dolgopolsky's has, nevertheless, made a good start in identifying the world in which the speakers of Proto-Nostratic found themselves. No one would deny that the picture is far from complete or even without

controversy, but it is more than what we had before, and, for that, we should be thankful.

I would like to close by presenting my own views on where and when Proto-Nostratic was spoken (this is a slightly modified version of what appears in Chapter 6 of my 1996 book *Indo-European and the Nostratic Hypothesis*). It will then be clear how closely Dolgopolsky and I are in agreement on these issues.

In my opinion, John C. Kerns has hit the nail on the head (Bomhard & Kerns 1994, 155): 'I believe that the Mesolithic culture, with its Nostratic language, had its beginning in or near the Fertile Crescent just south of the Caucasus'. Let us now re-examine the evidence from the Nostratic daughter languages and see how it leads to this conclusion.

The Indo-European homeland was most likely to the north of and between the Black and Caspian Seas (this is the view of Marija Gimbutas and many others — it differs from the views of Renfrew, Dolgopolsky, and Gamkrelidze and Ivanov, who posit an Anatolian homeland for Indo-European). However, Johanna Nichols (1997, 122–48) has convincingly argued that Pre-Indo-European originated in Central Asia and later spread westward to the North Pontic/ Steppe zone that was the geographical location where Proto-Indo-European proper developed, where it began to split up into different dialect groups, and from which its descendants spread into Europe, the Iranian plateau, and northern India. Likewise, again as argued by Nichols, Pre-Uralic may be presumed to have originated in Central Asia and to have spread westward, following a more northerly route than Pre-Indo-European. Thus, it is likely that the Eurasiatic parent language (as defined by Greenberg forthcoming) was located in Central Asia and that it is to be dated roughly at about 9000 BCE. This would mean that the eastern Eurasiatic languages (Altaic, Chukchi-Kamchatkan, Gilyak, and Eskimo-Aleut) must have spread eastward from Central Asia (more specifically, the area traditionally called 'Western Turkestan') to their prehistoric homelands. Nichols has also speculated that Pre-Kartvelian may have originally been located in Central Asia, from which it spread westward along a southern route below the Caspian Sea to the Caucasus Mountains. The Elamo-Dravidian homeland may be placed roughly in western and central modern-day Iran and dated at about 8000 BCE. Finally, the homeland of Afrasian may be placed in the Middle East in the Levant and dated at about 10,000 BCE. Working backwards geographically and chronologically, we arrive at the only possible homeland for Proto-Nostratic, namely, 'the Fertile Crescent just south of the Caucasus' (= Dolgopolsky's 'Southwestern Asia').

Thus, the following scenario emerges: The unified Nostratic parent language may be dated to between 15,000 to 12,000 BCE, that is, at the end of the last Ice Age — it was located in the Fertile Crescent just south of the Caucasus. Beginning around 12,000 BCE, Nostratic began to expand, and, by 10,000 BCE, several distinct dialect groups had appeared. The first to split off was Afrasian. One dialect group spread from the Fertile Crescent to the northeast, eventually reaching Central Asia sometime before 9000 BCE — this was Eurasiatic. Another dialect group spread eastward into western and central Iran, where it developed into Elamo-Dravidian at about 8000 BCE. If Nichols is correct in seeing Pre-Kartvelian as having migrated from Central Asia westward below the Caspian Sea to the Caucasus, this would seem to imply that Pre-Kartvelian had first migrated northeastward from the Fertile Crescent along with or as part of Pre-Eurasiatic, that it stopped somewhere along the way, and that it then returned to the Middle East.

Analysis of the linguistic evidence has enabled us to determine the most likely homeland of the Nostratic parent language, to establish a time-frame during which Proto-Nostratic might have been spoken, to date the disintegration of Nostratic, and to trace the early dispersal of the daughter languages. To round out the picture, let us now correlate the linguistic data with archaeological data. During the last Ice Age (the so-called 'Würm glaciation'), which reached its zenith about 18,000 to 20,000 years ago, the whole of northern Eurasia was covered by huge sheets of ice, while treeless steppe tundra stretched all the way from the westernmost fringes of Europe eastward to well beyond the Ural Mountains. It was not until about 15,000 years ago that the ice sheets began to retreat in earnest. When the ice sheets began melting, sea levels rose dramatically, and major climatic changes took place — temperatures rose, rainfall became more abundant, all sorts of animals (gazelles, deer, cattle, wild sheep, wild goats, wild asses, wolves, jackals, and many smaller species) became plentiful, and vegetation flourished. Areas that had formerly been inhospitable to human habitation now became inviting. Human population increased and spread outward in all directions, exploiting the opportunities created by the receding ice sheets. New technologies came into being — toward the end of the last Ice Age, hunter-gatherers had inhabited the Middle East, living either in caves or temporary campsites. As the Ice Age began coming to an end, more permanent settlements started to appear, and there was a gradual transition from an economy based on hunting and gathering to one based on cultivation and stock breeding. This was the setting in which Nostratic arose. Nostratic was indeed at the right place and at the right time. The disintegration of the Nostratic parent language coincided

with the dramatic changes in environment described above, and Nostratic-speaking people took full advantage of the new opportunities.

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Nostratic: Examining a Linguistic Macrofamily

The Conference from which the present volume derives, held at the McDonald Institute for Archaeological Research in July 1998, brought together a group of international scholars to discuss the issues arising from the well known claim that a linguistic macrofamily can be identified which includes not only the Indo-European and Afroasiatic language families but also the Kartvelian, Uralic, Altaic and Dravidian families. This claim, and analogous claims for other macrofamilies, has been firmly contested by many leading linguists on methodological grounds which are fully considered here. The Nostratic case was put forward by one of its leading exponents, Professor Aharon Dolgopolsky, supported by some of the leading advocates of the Nostratic hypothesis, and evaluated critically by linguists specializing in the language families concerned. Although no generally acceptable conclusion was reached the general arguments for and against linguistic macrofamilies and long-range comparisons were considered from a range of standpoints.

This volume will be of interest to historical linguists concerned to examine the claims made for macrofamilies in general and the Nostratic family in particular, as well as to prehistoric archaeologists and molecular geneticists seeking deeper insights into issues underlying the consideration of the prehistory of languages.

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